



“... in peace for all mankind”

EAGLE AND
COLUMBIA
FLY WEDNESDAY

ROUNDUP

NASA MANNED SPACECRAFT CENTER

HOUSTON, TEXAS



LUNAR SURFACE
TIMELINE
SEE PAGE 3

VOL. 8, NO. 19

JULY 11, 1969

National goal nears fulfillment in Apollo 11 Moonshot

“To perform a manned lunar landing and return.”

This is the goal, simply stated, that has existed in the minds of men for centuries and in the hearts of Americans for the past decade.

But the goal is no longer a fantastic dream. The way has been paved, we have the ability—and the time is now.

The Apollo 11 Lunar Landing Mission is scheduled for launch

this Wednesday at 9:32 a.m. EDT from Kennedy Space Center Pad 39-A.

The timeline for Apollo 11 is almost identical to its immediate predecessor, Apollo 10, which came within 50,000 feet of lunar soil.

Apollo 11's Prime Crew includes Neil A. Armstrong, commander; Michael Collins, command module pilot; and Edwin E. Aldrin, Jr., lunar module pilot.

The mission will be the fifth manned Apollo flight and the third to the Moon.

A powerful Saturn V lift-off from 39-A on the 16th will begin the three-day lunar journey. About 12 minutes later the spacecraft is inserted into a 100-nautical-mile circular Earth parking orbit.

The Saturn V's third stage will then restart over the Pacific to inject Apollo 11 into a translunar

coast. The “go ahead” for this injection will follow a complete checkout of the spacecraft's readiness.

About a half hour after translunar injection, the command service module (call sign, Columbia) will separate from the Saturn third stage, turn around and dock with the lunar module (call sign, Eagle), nested in the spacecraft's LM adapter.

Later, leftover liquid propellant in the Saturn third stage will be vented through the engine bell to place the stage into a “slingshot” trajectory toward solar orbit.

During translunar coast, the spacecraft will be in the passive thermal control mode, rotating slowly about one axis to stabilize thermal response to solar heating.

Four mid-course correction maneuvers are possible during TLC and will be planned in real time to adjust the trajectory.

When it reaches the Moon, Apollo 11 will be inserted into a 60-by-170 nautical-mile elliptical orbit which will be changed

two revolutions later to 54-by-66 nautical miles.

Both lunar orbit insertion burns, using the spacecraft's 20,500-pound-thrust service propulsion system, will be made behind the Moon when Apollo 11 is out of contact with Manned Space Flight Network stations and Mission Control.

About 21 hours after entering lunar orbit, Armstrong and Aldrin will man and check out the Eagle for descent to the lunar surface.

The LM descent propulsion system will place the Eagle in an elliptical orbit with a pericynthion, or low point, of 50,000 feet, from which the actual descent will be made.

After touchdown, the landing crew will first ready the LM for immediate ascent. They will then rest before depressurizing the cabin for the two-man lunar surface activity about 10 hours later.

Commander Armstrong will step onto the lunar surface first, followed by Aldrin some 25 minutes later.

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Biosatellite III test monkey dies

Bonny, the pig-tailed macaque monkey that was to be part of an extended Biosatellite III mission, testing physiological changes resulting from extended space flight, died unexpectedly last Tuesday, shortly after the mission was brought to a premature end.

Since the cause of death was not immediately apparent, an extensive autopsy is being performed on the 14-pound monkey by

the Ames Research Center team and cooperating scientists.

Flight controllers, who had recorded a weakening in the monkey's metabolism and an inability to perform experiments as trained, aborted the scheduled month-long mission after the ninth day.

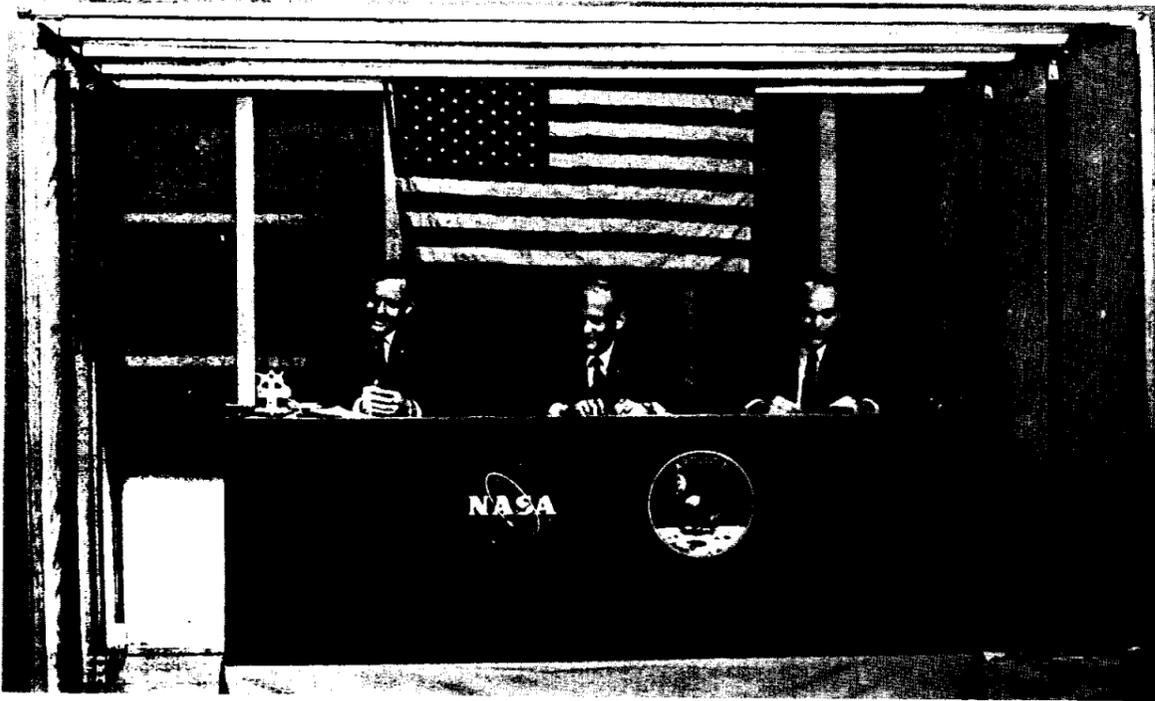
Charles A. Wilson, Ames' Biosatellite project manager, said that the monkey appeared to be in fair condition when he was re-

moved from the capsule, and that death was sudden and unexpected.

In spite of the tragedy, however, Wilson considers the mission a success in light of the “tremendous amount of information”—over one million data bits—gleaned.

Some of the experiments will be completed even though the mission was shortened to about a

(Continued on page 3)



SPECIAL BOOTH CONFINES APOLLO 11 PRIME CREW DURING PRESS CONFERENCE
Quarantine procedure requires Armstrong, Aldrin and Collins to limit personal contacts before flight

NASA selects three small mementos to commemorate manned landing

When Neil A. Armstrong and Edwin E. Aldrin, Jr., lift off from the Moon July 21 after their lunar exploration, they will leave behind three items in commemoration of the historic event.

Armstrong will unveil a plaque attached to the descent stage of the lunar module which has been signed by President Richard Nixon and the three Apollo 11 crewmen — Armstrong, Michael Collins and Aldrin.

The plaque bears an image of the two hemispheres of Earth and this inscription:

HERE MEN FROM THE
PLANET EARTH
FIRST SET FOOT UPON
THE MOON
JULY 1969, A.D.
WE CAME IN PEACE
FOR ALL MANKIND

Another memorial to be left on the Moon will be a 1½ inch silicon disc bearing messages of good will from heads of state of many nations.

The messages will be deposited on the wafer using the technique of making microcircuits for electronic equipment. NASA invited the heads of nations to submit messages for this purpose.

NASA, Germany to cooperate on scientific satellite project

A cooperative scientific satellite project has been agreed upon at a meeting in Bonn, Germany between Gerhard Stoltenberg, minister for Scientific Research of the Federal Republic of Germany and Dr. Thomas O. Paine, NASA administrator.

The integrated aeronomy satellite, to be designed and built by the Federal Ministry for Scientific Research (BMwF), is scheduled

The third item is a flag of the United States of America which will be erected on the Moon.

The flag is three by five feet and is made of nylon. It will be erected on an eight-foot aluminum staff, and tubing along its top edge will unfurl it in the airless environment of the Moon. Plans are for the event to be recorded on television and transmitted live to Earth.

The planting of the flag is symbolic of the first time man has landed on another celestial body and does not constitute a territorial claim by the United States.

It will be erected after both astronauts step on the Moon and will be placed at a sufficient distance to minimize danger from the spacecraft's rocket engine as it leaves the Moon.

The flag to be used was purchased, along with several others made by different manufacturers, at stores in the area around MSC.

In addition to the mementos to be left, Apollo 11 will carry four-by-six inch flags of other nations of the world, the 50 states, the District of Columbia, territories of the US and the United Nations.

for launching from the United States Western Test Range, Lomoc, California, on a NASA Scout rocket in 1972.

The purpose of the project is to correlate the most important local upper atmosphere variables of density and temperature of neutral and charged particles and solar ultraviolet flux in selected wavelengths.

(Continued on page 5)

These flags will be carried in the LM and brought back to Earth.

Two other US flags will be flown in the command module. These measure five by eight feet and are to be presented to the two Houses of Congress upon return to Earth. They were flown over the Capitol before the mission and will be flown there again after the mission.

Crew reveals mission 'firsts' in conference

In a meeting with the press last Saturday, Apollo 11 Prime Crewmen, Neil A. Armstrong, Michael Collins, and Edwin E. Aldrin, Jr., discussed some of the "firsts" to be encountered in their mission.

A somewhat extended solo period was one of the two major areas of difference in command module operation noted by CM Pilot Collins.

He also said that the CM-lunar module rendezvous sequence after lunar surface activity will be more difficult because "the starting point with the LM on the surface is a far cry from the preceding rendezvous where the relative position of the LM and CM were very precisely known."

This could present a wide variety of trajectory conditions for the LM and rendezvous maneuvers that could differ significantly from those used on previous flights.

New items in LM operations were discussed by Aldrin, its pilot.

"We'll be picking up where the Apollo 10 flight left off when they did their phasing maneuver. We'll be igniting the descent engine for the first time under a long burn condition when it is not docked with the

CM, and executing this burn under control of a computer."

During the landing maneuver Aldrin and Commander Armstrong will feed the computer

The Apollo 11 crew has selected new call signs for their spacecraft; Eagle, for the lunar module, and Columbia, for the command module.

"We selected these as being representative of the flight, the nation's hope," said Commander Neil A. Armstrong.

"Columbia is a national symbol. Columbia stands on top of our Capitol and, as you all know, it was the name of the Jules Verne spacecraft that went to the Moon 100 years ago."

target information, landing radar inputs and updates on altitude and velocity.

"The actual control of the touchdown itself will be a rather new item in that it will be testing this manned machine interphase to a very sophisticated degree," said Aldrin.

To determine the attitude of the LM's inertial measurement unit, star sightings with an alignment telescope will be used for the first time.

(Continued on page 6)



LANDING SITE 2 IS THE PRIME CHOICE FOR A JULY 16 LAUNCH
Apollo 11's Eagle will approach the terrain designated in ellipse, from West to East.

Busy timetable set for first Moonwalk

Apollo 11's Eagle is scheduled to touch the lunar surface at 4:19 p.m. EDT on July 20 for a stay of approximately 22 hours.

The first order of business after landing is an extensive checkout of LM systems and preparations for an emergency ascent staging.

Then, during the first 10 hours on the Moon, the men will rest, eat and prepare for their lunar surface activity.

At 2:02 a.m. EDT on the 21st, the crew will depressurize the lunar module and Commander Neil A. Armstrong will step down a ladder onto lunar soil. LM Pilot Edwin A. Aldrin will record the events with still and motion pictures from the Eagle.

As he leaves, Armstrong will pull a lanyard to deploy the modularized equipment stowage assembly and the black-and-white lunar television camera which will record his initial steps, via a two-foot antenna on the LM, for the people of Earth.

Once on the Moon, Armstrong will begin to familiarize himself with the lunar environment and will stow a small, contingency sample of lunar rock in his pressure suit pocket.

He will then make a preliminary checkout of the Eagle's condition and begin removing equipment from the MESA on the LM descent stage.

After the camera records Aldrin's egress, Armstrong will mount it on a tripod some distance away from the LM where it will be left untended to cover the remainder of the crew's EVA.

Aldrin's first duties include the deployment of a solar wind composition experiment and an ex-

tensive evaluation of the lunar environment.

Meanwhile, Armstrong will begin collecting the first bulk lunar samples. Before they leave, the crew will gather up to 130 pounds of Moon rock.

The sample-gathering equipment—a large scoop with an extension handle, two sample return containers, core tubes, a hammer and tongs, etc.—is stored in the MESA along with camera equipment and experiments.

Next the crew will conduct a detailed inspection of the LM, taking pictures with the Hasselblad lunar surface camera.

The Early Apollo Scientific Experiments Package contains two basic experiments: the passive seismic experiment package and the laser ranging retro-reflector. These will be deployed and left on the lunar surface to send back information after the mission.

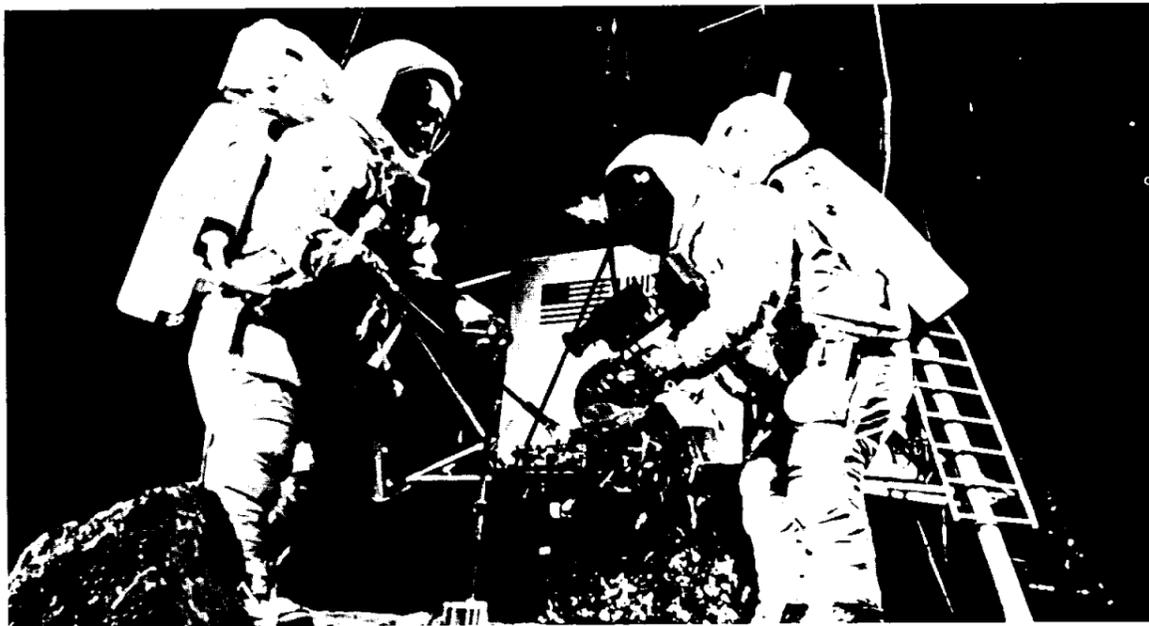
A large portion of the EVA time has been allotted to the collection of documented lunar samples.

Each crewman will make detailed observations of rock formations using their training in lunar geology and will take numerous pictures with a 35mm stereo close-up camera.

They will then select significant samples, document them and stow them in one of the two sample return containers. All samples will be hoisted into the ascent stage by means of an equipment conveyor just before termination of EVA.

After both crewmen have ingressed the LM and have connected to the cabin suit circuit,

(Continued on page 6)



ALDRIN AND ARMSTRONG SIMULATE COLLECTION AND DOCUMENTATION OF LUNAR SAMPLES
Armstrong photographs sample with stereo camera as Aldrin gathers material with long-handled scoop and tongs

Space suit designs vary with need for protection, comfort and utility

The Apollo 11 crew will be changing clothes several times between the time they enter the command module for launch and when they reach the recovery vessel.

During their flight the crewmen will use two versions of the Apollo space suit: an intravehicular pressure garment assembly worn by the command module pilot and an extravehicular pressure garment assembly worn by the commander and the lunar module pilot.

Both versions are basically identical except an integral thermal/meteoroid garment is placed over the basic suit in the extravehicular version.

A one-piece constant-wear garment, similar to "long johns", is worn as an undergarment for the space suit in intravehicular operations and for the inflight coveralls.

During periods out of the space suits, crewmen will wear two-piece Teflon fabric inflight coveralls for warmth and for pocket stowage of personal items.

Before going out onto the lunar surface, the landing crew will modify their pressure garments to form the extravehicular mobility unit. This unit includes:

- a liquid cooling garment, worn next to the skin, which contains a network of plastic tubing through which cooling water is circulated
- a portable life support system containing oxygen, cooling water, communications and telemetry equipment, displays, controls and a main power supply
- an oxygen purge system with a contingency 30-minute oxygen supply
- a lunar extravehicular visor assembly—a polycarbonate shell

attached over the pressure helmet to provide impact, micrometeoroid, thermal and ultraviolet infrared light protection.

• extravehicular gloves and shoes with thermal insulation from extreme temperatures.

Communications carriers ("Snoopy hats"), with redundant microphones and earphones, are worn with the pressure helmet; a lightweight headset is worn with inflight coveralls.

Another outfit, the biological isolation garment, will be brought to the crew after splashdown by a recovery swimmer and is to be donned in the CM.

This suit serves as a biological barrier between the crew and the Earth environment and will be worn between egress and transfer to the Mobile Quarantine Facility aboard the recovery ship.



COMMAND MODULE PILOT MICHAEL COLLINS IN CM MOCKUP
CM's docking tunnel provides passageway to and from lunar module.

Biosatellite--

(Continued from page 1)

third of its scheduled length.

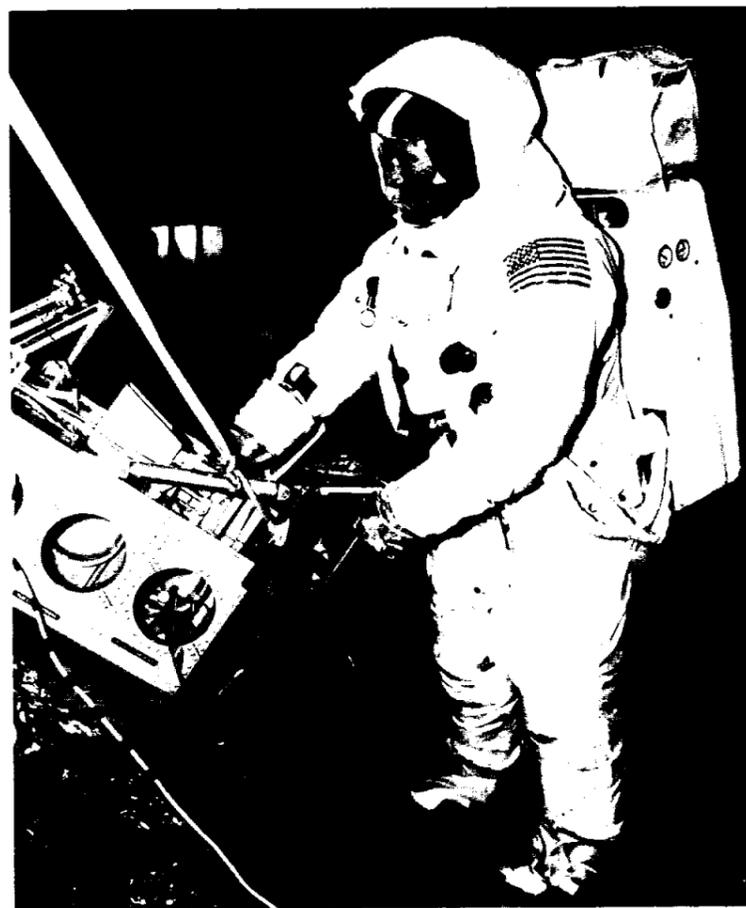
A shift in the monk's day-night rhythm was noticed on the second or third day, accompanied by a lowering of metabolism.

As his day-night cycle drifted to about 26 hours, the scientists recorded a slower heart rate, shallower breathing and a characteristic lowering of body temperature.

However, none of these symptoms can be considered a direct cause of the animal's death, said Adey.

Most of the post-flight analysis, on the monkey's tissues and organs and on the spacecraft, is being conducted at Hickam Air Force Base in Hawaii, where the spacecraft was recovered.

There are no immediate plans for another Biosatellite mission. However, Wilson expects some experimentation of the same type to be included in the flight plans for future orbiting laboratories.



EDWIN ALDRIN ADJUSTS MODULAR EQUIPMENT STOWAGE ASSEMBLY
LM Pilot Aldrin is wearing the lunar surface Extravehicular Mobility Unit

Blood Bank asks for contributions from employees

The MSC Blood Bank has scheduled the services of the Houston Bloodmobile to visit MSC between 9 p.m. and 3 p.m. on Wednesday, August 6 and Monday, August 11 at bldg. 8.

This visit will give each employee the opportunity to help fill a ceaseless need for blood reserves in the Houston area and, at the same time, create an emergency reserve for his family.

Time for participation in the Blood Drive will be charged to excused absence in accordance with MSC Management Instructions.

Blood in the Bank will be used for repayment of blood which has been furnished to a family by its hospital. The Bank will repay blood used by participating members first and then try to aid non-participants.

Since Blood Services of Houston is a member of the American Association of Blood Banks Clearing House System, credits can be transferred to almost any hospital in the United States.

Each employee who donates a pint of blood will be awarded a certificate and will become a member of the MSC Blood Bank Club for a full year.

Those interested in participating should make an appointment with Les Wynn, X6121, or Barbara Freeman, X3296. They will also handle any requests for blood.



NEIL ARMSTRONG STUDIES ROCK DURING GEOLOGICAL FIELD TRIP
Armstrong and Edwin Aldrin will document certain lunar specimens to Earth

Apollo 10 crew receives DSM, groups also cited

The Apollo 10 crew, Thomas P. Stafford, John W. Young and Eugene A. Cernan were presented the NASA Distinguished Service Medal on July 26.

The NASA DSM is the highest honorary award in the agency that can be conferred on an individual.

It is given to those persons in Federal Service who, by distinguished service, ability or courage, have personally made a contribution representing substantial progress to aeronautical or space exploration in the interest of the United States.

The presentations were made by Dr. Thomas O. Paine, NASA administrator, assisted by Dr. Robert R. Gilruth, MSC director.

Two group achievement presentations were also made during the ceremony.

Personnel from the Mathemat-

ical Physics Branch of the Mission Planning and Analysis Division were honored for their analysis of lunar gravity anomalies.

James C. McPherson, branch chief, accepted the Lunar Potential Analysis Award on behalf of his group: Paul F. Flanagan, Matthew M. Grogan, Richard D. Osburn, Emil R. Schiesser and Wilbur R. Wollenhaupt.

The team of engineers that developed the color television system used during Apollo 10 was also honored.

Herschel J. Wood, Jr., chief of the Flight Data System Branch, Space Electronic Systems Division, accepted the Color TV Development Team Award. His group included Paul P. Coan, Max Engert, Olin L. Graham, John R. Brinkmann, Joe McKenzie, William E. Perry, James C. Stamps and Joseph Woods.

Space research paves way for medical discovery

A small, rugged device that may eventually be implanted in the human body to measure blood pressure has been developed as a result of space agency basic research on electronic materials.

The instrument is a simple semiconductor transducer similar to one designed to measure pressure on wind tunnel models and

to relay telemetry data from small free-flight models.

(A transducer is a device that transforms one form of energy into another. Pressure, in this case, is changed into electrical energy and amplified. A microphone is a common type of transducer, transforming sound waves into electrical energy.)

The unit grew out of a research program at the Electronic Research Center under Dr. Wilhelm Rindner, chief of the Device Research Branch.

The medical importance of the instrument, which is called a cardiovascular pressure transducer, was established by a medical team at the Harvard School of

Public Health in collaboration with NASA.

Its use in transmitting pressure variations provides information about heart and blood circulation and has been successfully tested in anesthetized dogs.

The advance in monitoring blood flow changes will be especially important in cardiac patients and particularly those with coronary occlusions.

Less than 1000th of an inch in diameter, it uses less than 500 millionths of a watt of electrical power. (Compare this with three watts used to power a two-cell flashlight.)

A similar device, a miniature diaphragm-type capacitance transducer, has been developed at the Ames Research Center.

The Ames transducer has been used successfully on heart patients at the Stanford University Medical Center.

Eight-day mission will land, gather samples, deploy experiments

(Continued from page 1)

During the scheduled two hours and 40 minutes on the Moon, Armstrong and Aldrin will gather up to 130 pounds of geological samples for return to Earth in sealed rock-boxes. They will also set up two scientific experiments for returning Moon data to Earth long after the mission is completed.

One of the experiments, the passive seismic experiment package, measures moonquakes and meteoroid impacts. The other, is a sophisticated reflector that will mirror laser beams back to points on Earth to aid in expanding scientific knowledge of both this planet and the Moon.

Together, the experiments are contained in the Early Apollo Scientific Experiments Package.

Mission plans call for a television camera to be set up on the Moon to transmit live, all lunar surface activity.

The LM's descent stage will serve as a launch pad for the crew cabin as the 3500-pound-thrust ascent engine propels the ascent stage back into lunar orbit.

Four basic maneuvers, all performed by the LM crew using the Eagle's small maneuvering and attitude thrusters, will bring the LM and Columbia together for

docking about three and a half hours after lift-off.

The boost out of lunar orbit for the return journey is planned for about 131 hours after Earth launch, after the LM ascent stage has been jettisoned and lunar samples and film have been stowed aboard Columbia.

An optional plan provides for a 12-hour delay in transearth injection to allow the crew more rest after their most active day.

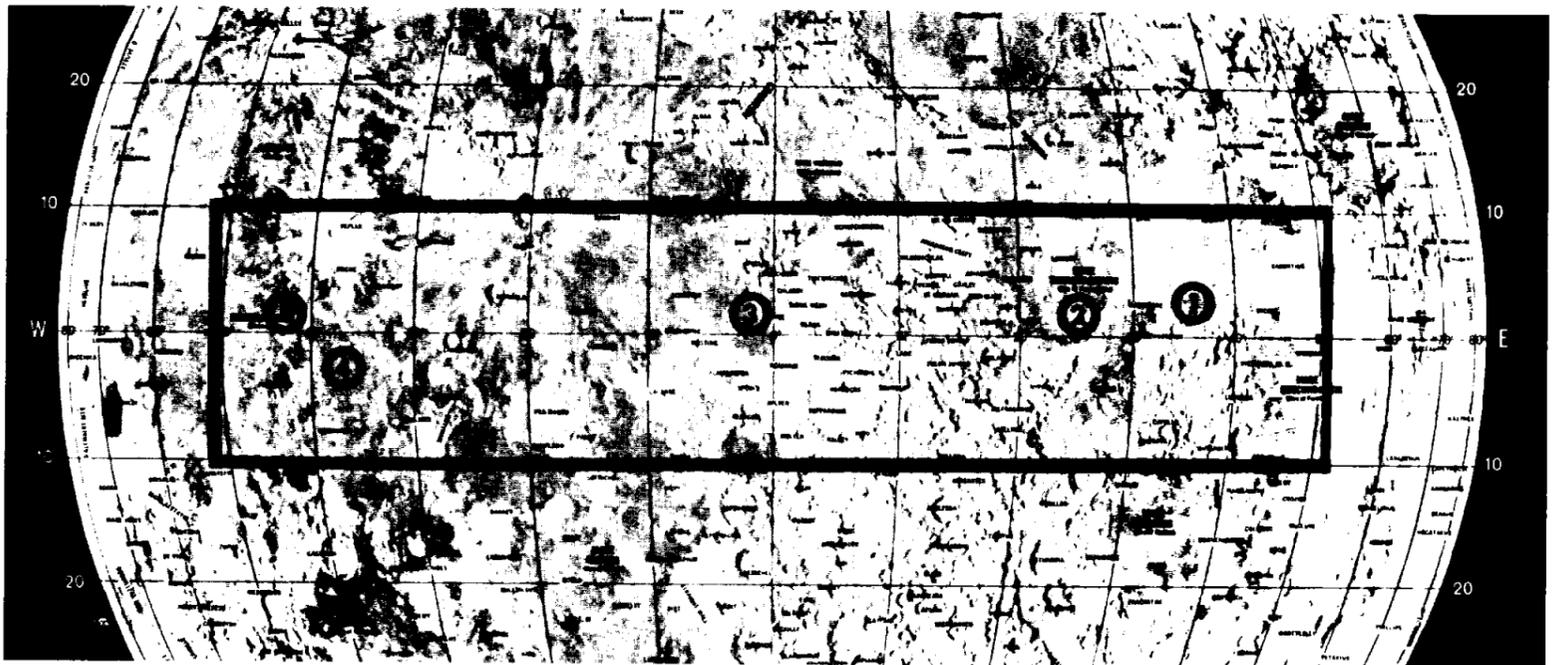
The total mission time to splashdown would remain about the same, since the transearth injection burn would impart a higher velocity and would bring the spacecraft to the mid-Pacific recovery line at about the same time.

During the transearth coast period, Apollo 11 will again control solar heat loads by using the passive thermal control "barbecue" technique.

Three transearth mid-course corrections are possible and will be planned in real time to adjust the Earth-entry corridor.

Apollo 11 will enter the Earth's atmosphere from 400,000 feet at 195 hours and five minutes after launch, traveling some 36,194 feet per second.

Splashdown is scheduled for 12:46 p.m. EDT, July 24, about 1040 nautical miles southwest of Honolulu, Hawaii.



FIVE ORIGINAL LANDING SITES, ALL NEAR LUNAR EQUATOR, SELECTED FROM ORBITER AND SURVEYOR DATA FOR EARLY MOON LAUNCHES
Sites, on Moon's visible face, were chosen for smoothness, slope and approach terrain. Apollo 11 will land on either 2, 3 or 5.

Manned Space Flight Network links spacecraft, MCC

During manned space flights, the Mission Control Center here at MSC is the focal point of NASA's elaborate tracking, command and communications system—the Manned Space Flight Network.

Data between the Mission Control Center and the Apollo 11 spacecraft will be relayed via the Goddard Space Flight Center in Greenbelt, Maryland.

The primary reason for this data exchange is to furnish reliable, instantaneous contact with the crew and their spacecraft from lift-off through Earth orbit, Moon landing and lunar take-off, all the way to splashdown in the Pacific Ocean.

A by-product of this exchange is the compilation of data for historical purposes and postflight analysis.

Direct contact and information feed must begin at the instant of launch and continue throughout the mission until recovery is completed.

This vital link with Earth will be operated in two broad phases.

For the first phase, the MSFN will depend largely on its stations equipped with 30-foot antennas, while Apollo 11 is launched and orbiting near the Earth.

These 30-foot antennas are located at Merritt Island; Grand Bahama Island; Bermuda; tracking ship Vanguard; Canary Islands; Carnarvon, Australia; Hawaii; another tracking ship; Guaymas, Mexico and Corpus Christi, Texas.

The second phase begins when the spacecraft moves out more than 10,000 miles from Earth where stations with 85-foot antennas will bring greater power and accuracy into play.

These larger antennas are located about 120 degrees apart, near

Madrid, Spain; Goldstone, California and Canberra, Australia.

For Apollo 11, MSFN will use 17 ground stations, four ships and six to eight jet aircraft—all directly or indirectly linked with Mission Control.

As the Earth revolves from west to east, data and communication flow is maintained by one 85-foot station handing over control to the next as it moves into view of the spacecraft.

The only unavoidable break will be the 45-minute intervals in each lunar orbit when the spacecraft passes behind the Moon.

Data are relayed back through the huge antennas and transmitted via the NASA Communications Network — a two-million mile hookup of landlines, undersea cables, radio circuits and communication satellites—to Houston.

Inside MCC the information from several data acquisition stations is used to produce event status displays, biomedical data displays and other pertinent charts required for immediate evaluation of mission status.

This information is fed into computers for visual display—for example, returning data may indicate a drop in power or some other difficulty in a spacecraft system, energizing a red light and alerting flight controllers to action.

To inject Apollo 11 into trans-lunar coast, Mission Control will send a signal through one of the land stations or one of the tracking ships in the Pacific.

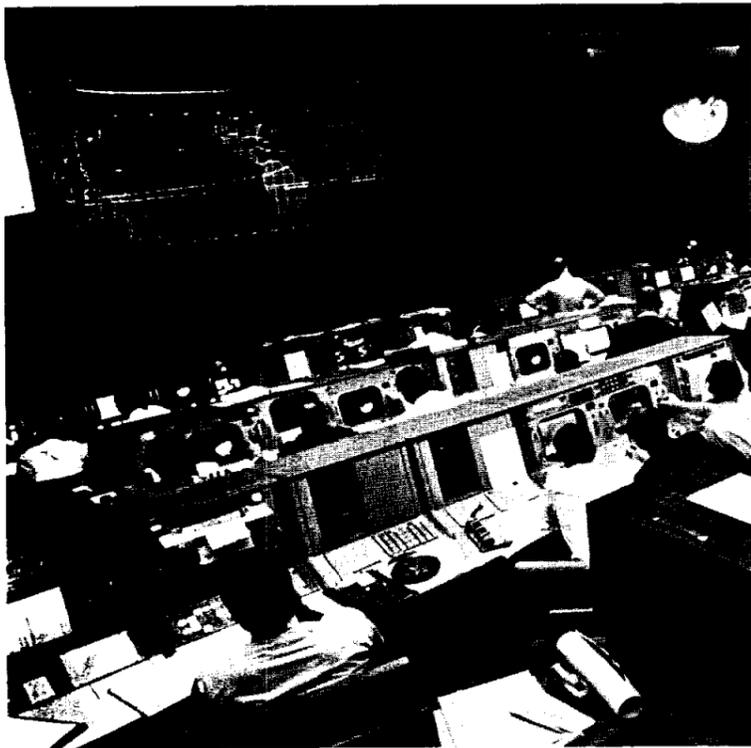
As the spacecraft heads for the Moon, the engine burn will be monitored by these ships and an Apollo range instrumentation aircraft. The ARIA provides a relay for the crew's voices and data communication with Houston.

When the spacecraft reaches an altitude of 10,000 miles, the more powerful antennas will take over primary support of the flight, although the 30-foot dishes will continue to track and record data.

Returning data, flowing through the Earth stations, give the necessary information for commanding midcourse maneuvers to keep Apollo 11 in a proper trajectory for orbiting the Moon.

After the craft is in the vicinity of the Moon, these data indicate the amount of retro burn necessary.

(Continued on page 8)



MISSION CONTROL CENTER COMPUTERS PINPOINT SPACECRAFT ON MAP
Manned Space Flight Network relays data from 17 stations around world

'Snack pantry' added by Apollo 11 as variety in space menus increases

As the space program develops, new ideas for greater crew comfort are added with each mission. Take, for example, space menus.

This mission's innovation is the addition of a "snack pantry" which permits a crew member to locate food items in a smorgasbord fashion, without having to "rob" a regular meal.

Apollo 10 saw the addition of the "spoon bowl" package which gives the astronauts larger main course food items such as Chicken and Rice, Spaghetti and Meat Sauce, Beef Stew and Pork with Scalloped Potatoes.

Apollo 11 will carry more than 70 items of freeze-dried, rehydratable wet-pack and spoon bowl foods.

Balanced meals for five days have been packed in man day overwraps while items similar to those in the daily menus are packed in the pantry.

Water for drinking and rehydrating food is obtained from three sources in the command module—a dispenser for drinking water and two (hot and cold) spigots at the food preparation station.

After a meal, germicide pills attached to the outside of the

food bags are placed in the bags to prevent fermentation and gas formation. The bags are then rolled and stowed in waste disposal compartments.

Agreement--

(Continued from page 2)

BMwF will provide instrumentation for the German experiments to be flown and will design, fabricate, integrate and test the spacecraft.

BMwF is to provide tracking and data acquisition as well as reduce and analyze the data obtained. NASA will provide a United States experiment, the Scout launch vehicle and tracking and data acquisition support.

Each agency will assume the costs of discharging its own responsibilities. The results obtained will be made available to the world scientific community.

The aeronomy satellite is the fourth major cooperative German-American scientific space project to be undertaken.

The others are the AZUR-1 satellite, scheduled for launch by NASA late this year; a barium ion cloud probe to be launched in 1970 and an advanced solar probe, Helios, planned for 1974-75.



'SPOON BOWL' PACKAGES ARE RECENT ADDITION TO MENUS
Surface tension allows food to cling to spoon even under weightlessness

Bond campaign reaches goal

The 1969 Savings Bond Campaign at MSC saw a rise in employee participation from 74.5% before the drive, to 83.2% at its close on June 20. This brought the Center over the Agency goal of 80%.

The Director's Staff, Legal Office, Public Affairs Office, Advanced Missions Program Office, Program Control and Contracts Directorate and the Houston office of Marshall Space Flight Center Flight Control, reported 100% participation.

Philip H. Whitbeck, Center chairman, and Russell C. Connelly, co-chairman, have offered special thanks to all campaign workers and contributing MSC employees.

Although the campaign for 1969 has ended, the sale of Savings Bonds is an on-going program and employees who did not enroll during the drive are urged to put aside a portion of their recent pay raise, by payroll deduction, for Bonds or Freedom Shares.

A share in America is a share in your future.



RUSSELL CONNELLY AND PHILIP WHITBECK CHECK BOND SALES
Six Directorates reached 100% participation during Savings Bond Campaign



SPACE ENVIRONMENT TESTERS EARN OUTSTANDING PERFORMANCE AWARDS

Outstanding Performance Awards were earned recently by three members of the Space Environment Test Division: Raymond E. Sanders, EMU test manager; Franklin U. Williams, head of the Laboratory Engineering Section and James S. Moore, head of the Test Director's Office. James C. McLane, Jr., division chief, made the presentations.



Facts to know

Medical journals say that under ordinary circumstances giving blood is good for your system. It stimulates the bone marrow just as exercise stimulates the muscular system.

You can help yourself and others by donating blood on August 6 and 11.



FIVE FROM TWO GROUPS RECEIVE OUTSTANDING PERFORMANCE AWARDS

M. L. Raines, acting manager for the Reliability and Quality Assurance Office and the Flight Safety Office, presented Outstanding Performance awards to members of those organizations. The recipients were William L. Baldwin, Mary M. Jones, and Jones P. Seigler of R&QA and Sidney D. Carmines and Bobby J. Miller of FSO.

Crew conference--

(Continued from page 2)

Aldrin also noted the planned two-man extravehicular activity as a program first as well as man's first encounter with 1/6th Earth's gravity and extreme lunar thermal conditions.

The powered ascent with over seven minutes' burn on the ascent engine "will bring us back up to that point in the Apollo

10 flight where they had their insertion maneuver.

"From that point on," said Aldrin, "we hope that the rendezvous will go as smoothly as it did on that flight."

A special booth was used during the conference to separate members of the crew from their audience.

This was part of an attempt on the part of the astronaut medical staff to provide limited contacts for the crew during the 21 days preceding the mission.

A statement by Dr. Charles Berry, director of Medical Research and Operations, said that an illness contracted during this time period could delay launch, curtail the crew's activities once the mission began or prolong the 21-day post-flight quarantine.

★ Only ★
**certain Americans
can buy new
Freedom Shares**

★ ASK WHERE YOU
WORK OR BANK ★

**Credit Union
straight talk**

Members of the MSC Federal Credit Union will be receiving requests for confirmation of their accounts through the mail in the near future.

These requests are submitted by the Supervisory Committee which, independent of Credit Union officers and personnel, performs audits of the accounts and records for Credit Unions.

Members will please assist the committee by replying promptly.

**MSC Toastmasters
elect new officers**

The MSC Toastmasters Club has held its bi-annual election of officers, naming Joe Robinson, president; Dave Phillips, educational vice-president; Dick Nance, administrative vice-president; David Holman, secretary; Jack Cohen, treasurer and Lester Moore, Sr., master host.

The installation dinner on June 24 was presided over by District Governor Bert Leonard.

Toastmasters meet each Wednesday at the Nassau Bay Sweden House from 6 to 8 p.m.

Your Job in Focus

**Regulations govern
employee gift acceptance**

Periodic reminders are published with regard to the handling of gifts and gratuities to assure that all employees are informed on the subject.

NASA regulations forbid solicitation or acceptance by a NASA employee (or his spouse or minor child) of any gift, gratuity, entertainment, favor, loan or any other thing of value from any person or corporation where there is a possible conflict of interest, or where it gives the appearance that a conflict of interest exists.

There are certain permissible exceptions, such as acceptance of food or refreshments of nominal value on infrequent occasions in the course of luncheon or dinner meetings, unsolicited advertising or promotional materials of nominal value, etc.

Those gifts which are prohibited should be returned to the donor. If this is not possible, the gift should be turned over to a public or charitable institution.

The employee should then report this action, in writing, to his supervisor with a copy for the Personnel Division for inclusion in his personnel folder. The reasons for inability to return the

gift should be included in this report.

Further details on this subject may be found in NHB 1900 1A, Standards of Conduct for NASA Employees, which has been distributed to all employees.

**Payment of debts—a
private responsibility**

The Standards of Conduct for NASA Employees, October 1967, prescribes the following with regard to payment of debts by Federal employees:

"The indebtedness of NASA employees is considered to be essentially a matter of their own concern. NASA will not be placed in the position of acting as a collection agency or of determining the validity or amount of contested debts.

"Nevertheless, NASA employees are expected to honor in a proper and timely manner, debts which are acknowledged by the employee to be valid or which have been reduced to final judgment by a court, or to make or adhere to satisfactory arrangements for the settlement of such debts.

"Employees are also expected to meet their responsibilities for payment of Federal, State and local taxes."

The above wording "in a proper and timely manner" means in a manner which NASA determines does not, under the circumstances, reflect adversely on NASA as the employing agency.

ROUNDUP

NASA MANNED SPACECRAFT CENTER

HOUSTON, TEXAS



The Roundup is an official publication of the National Aeronautics and Space Administration Manned Spacecraft Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for MSC employees.

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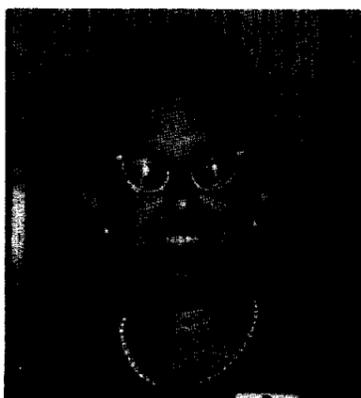
SUSTAINED SUPERIOR PERFORMANCE AWARDS EARNED BY FOUR



Donald M. Corcoran
LM-3 Vehicle Manager



Terry Spence
NASA Downey



Pam Andressen
NASA Downey



John G. Presnell, Jr.
LM-2 Vehicle Manager

Timetable--

(Continued from page 3)

they will doff the PLSS backpacks and jettison them along with other gear no longer needed.

The LM cabin will be repressurized about two hours and 40 minutes after the EVA initiation to permit transfer of the crew to the Eagle's life support system.

They will then have a meal and rest period before beginning their ascent at 1:55 p.m. to rejoin Michael Collins in the CM.

MFA stresses quality in every job leading to manned launches

In a business where a fractional error may scrub an entire project, and where men's lives often hang in the balance, there is a ceaseless demand for perfection in the daily tasks of every employee.

Unfortunately, this fact was most vividly brought home by an error which cost the lives of Apollo crewmen Ed White, Virgil Grissom and Roger Chaffee in 1967.

It was three weeks after the Apollo fire when a key program official, near exhaustion from endless hours of investigating the tragic accident, stood before a group of quality managers and motivational chairmen representing NASA's major hardware contractors.

In a somber, locker-room atmosphere, he said. "It seems to me that within the elements of what happened here lie the seeds of a really significant motivational program for the workers in your plants.

"Somehow, we have to reach a degree of sophistication in the motivational area that I have yet to see. It's got to get the in-line people in the organization feeling responsible, to get them to really understand their job, to get them feeling they're a part of the

thread that leads right up to launch."

Developing and maintaining the in-line spirit this official spoke of is the difficult and unending task of NASA management, assisted by Manned Flight Awareness Offices situated at each of the manned space flight centers.

It starts with management setting high standards, refusing to accept poor quality and letting all employees know that high performance is expected.

The job of each MFA office is to communicate this idea to each individual concerned with the accomplishment of manned space flights.

Activities range from the dissemination of vital program information to plant workers and assembly personnel to the recognition of individual accomplishments in support of the manned space flight program.

The MFA offices distribute information on safety requirements and practices, the necessity for quality products and services and the identification of critical mission hardware and personnel functions.

In cooperation with NASA MFA offices, astronauts and

program managers periodically make motivational appearances before groups of plant employees, emphasizing the high order of systems safety and reliability demanded by manned space missions.

Employees who perform in an outstanding manner on the manned space flight program, those who use their "imaginative muscles", are singled out by MFA for personal recognition.

These may include a welder who has completed 10,000 welds without a defect; a supply clerk who has maintained error-free

records for a protracted period; a supervisor whose leadership, personal integrity and professional understanding led to high morale and performance within his department; or an engineer who suggested a change in checkout procedures resulting in a greater margin of safety for the spacecraft crew.

Some receive company-paid trips to Cape Kennedy to watch Apollo launches. Others receive personal letters from astronauts and program managers commending their efforts. Still others receive plaques, certificates, monetary awards, and other special

recognition often leading to promotions and other professional opportunities.

Since the inception of the program at MSC in April, 1966, 38 hardware contractors have established formal MFA programs, disseminating program information from the prime contractor level all the way down to the least parts suppliers and vendors.

During the last five months, special awards from the astronauts have been presented to workers at over a hundred contractor plants and the supporting government agencies.

MFA officers, working cooperatively with quality managers throughout the space industry, have made a significant beginning in the battle against carelessness, the creeping paralysis that can afflict so many critical activities in the aerospace industry.

Manned Flight Awareness is not an office, it is an idea; and as it continues to permeate industry and government, it cannot help but revitalize motivation and stimulate to greater accomplishment the many creative and talented people who have brought this nation to the threshold of man's greatest adventure — manned landings on the Moon.

SUPERIOR ACHIEVEMENT



John G. Zarcaro
Flight Operations Division



Thomas F. Gibson
Flight Operations Division

Roundup Swap-Shop

(Deadline for Swap-Shop classified ads is the Friday preceding Roundup publication date. Ads received after the deadline will be run in the next following issue. Ads are limited to MSC civil service employees and assigned military personnel. Maximum length is 15 words, including name, office code and home telephone number. Send ads in writing to Roundup Editor, AP3. Ads will not be repeated unless requested.)

REAL ESTATE

West Galveston Beach House, gulf view, all electric, 1 block to water, sell or rent, Green, 932-3486.

Taylor Lake corner lot, wooded, lake view, \$1000/down, balance at 7%, owner, 591-4632.

Nassau Bay 4-2-2, fenced, assume 6% loan, X7256.

Seabrook (Miramar) 3-2-2, paneled den, carpet, central A/H, built-ins, fenced, assume 5 1/4%, \$120/mo, immediate occupancy, Culling, 479-5722.

Alta Loma 10 acres, 6 mi south of Alvin, highway 6, fenced, fertile, \$1000/acre, 944-6066.

Shore Acres 1 acre residential lot, utilities, trees, 10 min. from NASA, \$7000, 944-6066.

Pasadena, 3-2 1/2 for rent, 1-yr lease, large lot, sundeck, appliances, available August, \$260/mo, 944-6066.

West Galveston Island (Spanish Grant) house for rent, 3-2, air, furnished, gulf view, \$175/wk, J. Small, 591-2315.

Pearland, 1 3/8 acres, corner, 30 small pines, residential development, sacrifice \$4000, Plauche, 474-2660.

Nassau Bay Brick Colonial, fenced, corner, 3-2-2, den, circular fireplace, formal living, dining, 5 3/4% 591-2340.

Baywood 100' X 150' wooded lot, private pier, boat launch, \$4200, Larson, 471-0068.

Bay Colony 3-bdr, pier, swimming pool privileges, \$175/mo, available August 7, M. Jones, 877-1623.

Fairmont Park Brick Colonial for rent from owner, family room, living room, double garage, swimming pool privileges, W. Muhly, 471-3762.

Arlington Heights 4-2-2, 1 1/2 story brick, fenced shady yard, near 3 schools, 6% loan, 946-6571.

AUTOS

68 VW sunroof sedan, radio, red, black vinyl interior, \$1550, J. Sutton, 932-3979.

66 Simca BLS 1000, 4-dr, full financing arranged, \$775, consider trade, F. Turner, 733-7667.

65 Allstate Mo-Ped, motor in good cond, \$50, D. Murphy, 479-1942.

66 Porsche 911, 14,000 mi, new radial tires, AM/FM, deluxe interior, R. Schweickart, 591-2439.

65 Fairlane 500, air, power, automatic, buckets, 44,000 mi, D. McCutchen, 591-2663 after 4.

64 Buick Special, 4-dr, 8 cyl, air, power steering, automatic, excellent cond, E. Simon, 488-4043.

64 Olds F-85, 4-dr, 8 cyl, air, R/H, standard, excellent cond, E. Simon, 488-4043.

67 Camero, power steering, automatic, air, radio, 327, M. Pingnot, 667-9596 after 5.

63 Grand Prix, low mileage classic, air, power, electric windows, factory mags, wife's car, \$695, Ream, 877-4308.

62 Valiant, 4-dr, 6-cyl, automatic, good cond, \$250, B. Durand, 932-5777.

68 VW, radio, vinyl interior, white walls, \$1300 firm, A. Thies, X2331.

65 White Triumph Spitfire convertible, black interior, R/H, excellent cond. \$750, Hanmer, 877-4903.

62 Rambler Classic, 4-dr, 6-cyl, R/H, automatic, good cond, \$200, Alvin, 658-4855.

65 Fairlane 500, 2-dr HT, V-8, automatic, radio, air, clean, \$925, Alvin, 658-6227 after 5.

59 Olds 4-dr HT, power, air, radio, \$150, Myers, 488-0810 after 5.

64 Buick Skylark, 4-dr, air, power steering, radio, V-8, automatic, J. Gaddy, 877-1635 after 5.

66 Bonneville 2-dr HT, good cond, R. Williams, 488-2713.

68 Volvo 144S, air radio, 15,000 mi, like new, L. Moore, 488-5132.

68 VW, excellent cond, 21,000 mi, \$1395, J. Thompson, LaPorte, 471-2646.

66 Cutlass Supreme, light blue w/black vinyl top, R/H, power, automatic, \$1750, excellent cond, Leota, 483-5171.

68 Fiat 124 Sport Coupe, AM/FM, air, excellent cond, K. Berry, 658-8882.

59 Swedish Volvo, PV 544, \$150, Guthrie, 946-7848.

67 Chevy Caprice 4-dr, white w/black vinyl roof, almost every available option, P. Chapman, 591-4659.

62 F-85 Olds convertible, standard, needs some repairs, body in excellent cond, new top, \$225, A. Belluomini, 488-0354 after 5.

64 Chevelle wagon, standard, R/H, \$550, 591-3735.

BOATS

19 1/2' ob day cruiser w/trailer, fiberglass hull, and decks, excellent cond, \$750, engine not included, W. Mallory, 482-7081.

Lido 14, orange deck, white hull, trailer,

excellent cond, \$1150, R. Wilson, 591-3886 after 7-13.

8' aluminum rowboat, flat bottom, excellent cond, includes oars and oarlocks, \$60, E. Rubenstein, 877-3288.

14' fiberglass power boat, electric start 50 hp Mercury 500 has less than 60 hrs running time, big wheel trailer, \$750, J. Capps, 471-3753.

Sunfish sailboat w/sail, good cond, no trailer \$175, or best offer, J. Capps, 471-3753 after 5.

13' 9" Scorpion board sailboat, fiberglass; 15' 3" Demon centerboard sailboat, fiberglass, S A 116 sq. ft, B. Ward, 591-2182.

16' Aristocrat w/canopy, 40 hp Johnson, trailer, 1963 model, excellent cond, \$2800 new, F. Van Rensselaer, 488-3641.

15' Helton, fiberglass covered, 35 hp Evinrude, trailer, \$395, R. Longmire, 471-4322.

HOME FURNISHINGS

3 piece corner sleeper couch set w/table, \$100 or best offer; modern walnut dining table w/leaf, \$40 or best offer, J. Bates, 944-4687.

Kenmore gas dryer, 3-speed, 6 temperatures, apartment requires electric or wouldn't sell, good cond, \$75, Jobe, 497-1863.

11' X 15' Dupont 501 nylon carpet, dark green, best offer, R. Sobolik, 488-1100.

GE washing machine, it works, \$15, L. Moore, 488-5132.

2 brown vinyl barstools w/silver trim, very good cond, \$9, J. Epperson, 645-2337.

Fedders air conditioner, 10,000 BTU, 115 volt, heats and cools, \$150, L. Shollenberger, 488-5372.

Dinette set, formica top, \$30; ironer (mangle), \$10; typewriter table, \$3; electric can opener, \$3, L. Shollenberger, 488-5372.

1953 12.8 cu. ft. double-door Hotpoint refrigerator, runs perfectly, \$25, Friendswood, 482-7990.

Crasley refrigerator, 10 cu. ft, freezer section across top, \$40, 932-2718.

Beautiful 12' X 15' rug and pads, Armstrong-Lancaster, 100% nylon, sahara gold, like new, best offer, K. Laughery, 932-4730.

30" Kenmore gas range, white, \$60, J. Miller, 487-3987.

Modern sheet-glass coffee table w/glass brick supports, \$50, 488-1931.

Sectional sofa, \$25; pole lamp dresser \$15, twin bed headboard and frame, 946-6571.

PETS

Kittens for the connoisseur of plain cats, black and white, 6-wks old June 29, J. Goodman, 488-0609.

Seal-point Siamese kittens, litter-box trained, \$15 each, 474-3373.

Boxer puppies, AKC, 8-wks old, \$50 and up, E. Tiedt, 488-2679.

ENTERTAINMENT

Roberts model 770 4-track stereo recorder, 2 mikes, input-output patch cords, good cond, \$150, E. Walters, 649-2838.

GE portable stereo, AM/FM and phonograph, stand, \$100, 471-4341 after 5.

Martha Washington Upright piano, \$200; roll-a-way bed, \$15, J. Derbonne, 534-3669.

Portable stereo record player, 3 speakers, good cond, \$140 new, \$60, L. Moore, 488-5132.

Eico FM tuner, mono amplifier, 24" cabinet w/speakers, very good cond, \$35, R. Handley, 482-7041.

Garcia classical guitar w/hardshell lined case, made in Madrid, brand new, \$120, Canin, 534-3721.

MISCELLANEOUS

69 travel trailer, 17' self contained except no shower, excellent, \$2000, Donnell, 877-1746.

Twin stroller, \$7; Cosco net playpen, \$6; Zenith stereo, \$25, 474-2049, mornings only.

B-flat Normandy clarinet, \$70; alto saxophone, \$60, table tennis board, \$7; sway bar for VW, \$5, 944-6066.

Adult and children's games: Clue, Rook, Hi-Q, Carrom 101 gameboard, Scrabble, Spy Detector, good-excellent cond, Keener, 488-1193.

Rock's 10" slab & trim saw, complete w/blade & motor, excellent cond., \$125, 488-1931.

Rock's Big 6 grinder and sander combination, never used, brand new, \$50, 488-1931.

Agfa 35mm camera, all settings, \$50 new, lens for extra beautiful prints or slides, flash attachment, leather carrying case, need money, make offer, I. Blackburn, X3342 between 12 and 12:30.

Little Swinger camera w/film and flash-bulbs, perfect cond, \$10, Keener, 488-1193.

Golf clubs: 2 thru 9 plus putter, 1 & 2 woods, bag and cart, \$50, H. Glicken, X4065.

Organ instructor has several openings for students, Mrs. Bell, 591-2340.

Utility trailer, very good cond, license plate, lights, title, \$75, L. Murray, 474-3373.

Swift Wing fiberglass archery bow, 35 lb., 1-yr old, like new, \$30, S. Millian, 488-2384.

One dozen used wooden field arrows, 28 3/4", \$4.50; 1/2 dozen used aluminum target arrows, 28", \$4.50, S. Millian, 488-2384.

18" 2 1/2 hp Sears reel mower w/catcher, needs tuneup and sharpening, \$15, T. White, 932-4472.

Flying Beech Bonanza, Spaceland to Norfolk, Va. about 7-29, returning 8-8, can take up to 3 passengers, share expenses, about 5c/mi, can drop off at any city on way, M. von Ehrenfried, X7661.

Science Fiction buffs alert: the traveling 2-4-1 Science Fiction Trading Post is back, will come to you, Krisberg, X2755.

Will fly persons on weekend for cost, F. Blankenship, 944-0750.

Trailer, enclosed utility; aluminum Jan boats; Honda Trail 90; Minibike; 303 rifle, 946-6571.

Fly retractable w/Aero Club, Inc, for MSC and contractors, P & K Bonanzas, IFT, 195 mph \$17/hr wet, Cessna 172 \$9/hr; 150 \$8/hr; Instructor \$5/hr, B. Ward, 877-3187.

Immaculate 1955 Cessna C-170B, 590 SMOH, 1400 TT, full panel, Rot. Bcn Dual VOR, a real beauty, \$5,000, K. Jones, 471-3760 after 7.

WANTED

Lionel electric trains made before 1960, C. Naegeli, 932-4171 after 5.

Chest of drawers or baby chest, L. Blankenship, 944-0750.

Baby stroller, R. Williams, 488-2713.

Ride from 3900 block of South MacGregor, UH area, to bldg 2 any shift, R. Reid, 748-9654 after 4:30.

Baby bed, high chair, wooden playpen, Rudy, 483-5171.

THE ASTRONUTS



WILLIAM EMMERTON PREPARES FOR LONGEST RUN
Member of MSC medical staff pronounces him physically fit

Space Center Rotary Club sponsors Aussie jogger's 1100-mile Cape run

As NASA prepares Apollo 11 for its quarter-of-a-million-mile journey to the Moon, an Australian-born road runner is saluting the venture with the longest run of his life.

Drawing attention to physical fitness and the space program, William Emmerton, 49, is running from MSC to Cape Kennedy, Florida—a distance of 1100 miles.

Emmerton, sponsored by the Rotary Club of Space Center in Clear Lake, began his 40-mile-a-day jog from MSC's front gate at noon on June 17.

He left amidst a crowd of well-wishing joggers bearing proclamations of good will to the lunar astronauts from the mayors and city councilmen of Houston, Galveston and Pasadena.

He hopes to reach the launch complex on July 15 and deliver the messages to the crew through James Lovell, special presidential advisor for physical fitness.

KMSC-FM radio to cover mission

The Apollo 11 mission will be covered from liftoff to splash-down by radio KMSC-FM, according to Larry Oldham, operations director.

Broadcasting 24 hours a day at 102.1, the Nassau Bay station will carry mission commentary and live air-to-ground transmission from Mission Control Center and all press conferences from the MSC News Center.

The MSC medical staff responsible for flight crews examined Emmerton prior to his departure and declared him fit and physically prepared to undertake the month-long trip across five states.

Seminar hears success stories

A lecture and seminar concerning "Successful Women in Federal Service" was presented recently for local participants in the nation-wide Summer Aide Program.

In cooperation with program leaders, several women in key positions at MSC spoke with a group of female students who were selected for summer employment at this center.

Speakers were: Marilyn Bocking, administrative assistant to the Apollo Program Manager; Larue Burbank, technical assistant to the chief of Systems Engineering Branch; Ruth Westbrook, data analyst; Silvie Gaventa, personnel management specialist; Ivy Fossler, engineer, Fluid and Flight Mechanics and Barbara Eandi, contract specialist.

Each spoke of the opportunities for women in government service and specifically of the openings in her particular field.

This was the first of several training and counseling sessions planned for MSC's Summer Aides.

Emmerton has jogged more than 100,000 miles in his lifetime. The longest previous run was from England to Scotland—a distance of 954 miles.

Rotary Clubs along his route are greeting Emmerton as he jogs into their community and many enthusiasts run along with him through the city limits.

He is traveling with his wife, Norma, who varnishes his feet (that's right, with real varnish) and treats blisters and sore muscles along the way.

The Rotary Club of Space Center asked Emmerton to undertake the run as a means of drawing attention to the benefits of physical conditioning for all Americans, and especially for the teenage youngsters living in the Houston area who are seeking outlets for their energies during the long summer months.

The space-oriented Rotarians have planned several track events and jog-ins over the coming weeks to select the most fit teenager in the MSC area.

The winner will be awarded a trip to Dallas on Thanksgiving Day to meet Emmerton and Lovell at the national convention of joggers, which has come to be known as the "Turkey Trot".

Local Rotarians have set up a poster and bumper sticker campaign to discourage drug abuse, arranged a summer employment program and established, through INTERACT, a student-operated and financed newspaper called "Interaction".

Manned Flight Network--

(Continued from page 5)

sary for the service module engine to place the spacecraft in lunar orbit.

Once the lunar module separates from the command module and goes into a separate lunar orbit, the MSFN will be required to keep track of both spacecraft at once and provide two-way communication and telemetry between the craft and Earth.

Tracking and acquisition of data between Earth and the two

spacecraft will provide support for the rendezvous and docking maneuvers. The information will also be used to determine the time and duration of the propulsion engine burn required to place the CM into the precise trajectory for entering the Earth's atmosphere at the planned location.

An ARIA aircraft will relay crew voice communications to MCC and antennas on reentry ships will follow the spacecraft.

news from around



ELLINGTON AFB — During a change of command ceremony on July 1, Colonel James S. Coward turned command of Ellington Air Force Base over to his successor, Colonel Morgan R. Beamer, Jr.

Colonel Coward, commander of Ellington since April 1, 1968, will remain at the base as he has been elevated to commander of the Fourth Air Force Reserve Region which will move its headquarters from San Antonio to Houston on July 25.

NORTH AMERICAN ROCKWELL — NR's Space Division has developed a new and inexpensive technique for testing the effectiveness of superinsulations for future launch vehicles.

"The world of superinsulations will come into being during the 1970's," said Researcher Dr. Milton B. Hammond, "when we can look forward to missions requiring this protection for a year or longer."

BROOKS AFB — The School of Aerospace Medicine at Brooks has developed an exerciser for the entire body to be used in space flight.

A study is being conducted to determine whether this method of exercise will prevent the metabolic and cardiovascular consequences of weightlessness.



SUMMER AIDES ATTEND SEMINAR ON 'SUCCESSFUL WOMEN IN FEDERAL SERVICE'
Larue Burbank, Systems Engineering, speaks to MSC's female aides on advantages of government service.